

MUG SERIES LED DRIVER

DL-150U-MUG SPEC V1.5

Features

- Class I type for insulation(pending)
- Input voltage range: 277-480V ~ 50/60Hz
- Efficiency :92%(Typ.)
- Constant current output ,with power limitation for control mode
- Metal case, protection grade against water and dust: IP67
- Surge level:
 - differential mode :6kV,
 - common mode :10kV
- Available version :
 - Isolation dimming function: 3-in-1 dimming
- Guaranteed Lifetime: 5 years



Applications

Street lighting、Industrial lighting、Venue lighting
 Floodlight lighting、Landscape lighting 、Plant lighting



Model list

Model NO.	Input voltage	Output power	Output voltage	The default current	Eff.	T.H.D	PF
DL-150U-V56P-MUG	277-480V 50/60Hz	150W	25-56Vdc	3.6A	≥91%	≤10%	≥0.95
DL-150U-V214P-MUG	277-480V 50/60Hz	150W	95-214Vdc	0.7A	≥92%	≤10%	≥0.95

- Note :**
1. Test conditions: Ta=25°C, under 380Vac input,after running for 30 minutes with full load .
 2. When the input is less than 240±10%Vac,the output power gradually decreases.When the input 277-480VAC,rated power 150W.
 Please refer to "THE OUTPUT POWER VS INPUT VOLTAGE" curve chart for details.

Input characteristics

Parameter	Min	Typ.	Max	remark
Rated input voltage	277Vac	380Vac	480Vac	-
Input voltage range	264Vac	-	504Vac	-
Rated frequency range	47Hz	50/60Hz	63Hz	-
Power factor	0.95	-	-	@380Vac input ,with full load
Power factor	0.9	-	-	@277-480Vac input ,with 65%-100% load
T.H.D.	-	-	10%	@380Vac input ,with full load
T.H.D.	-	-	20%	@277-480Vac input ,with 65%-100% load
Input current	-	-	0.7A	@277Vac input ,with full load
Inrush current	-	-	70A	380Vac, cold start (25°C)

Output characteristics

Parameter	Min	Typ.	Max	remark
Rated current				
DL-150U-V56P-MUG	-	2.68A	-	-
DL-150U-V214P-MUG	-	0.7A	-	-
Output current range				
DL-150U-V56P-MUG	1.7A	-	4.2A	-
DL-150U-V214P-MUG	0.5A	-	1.05A	-
Output voltage range				Constant power voltage range:
DL-150U-V56P-MUG	25V	-	56V	36-56V
DL-150U-V214P-MUG	95V	-	214V	143-214V
Available power(277-480Vac)	-	150W	-	Decrease to a half once input voltage being less than 240±10%Vac
Rated power(277-480Vac)	-	150W	-	-
No-load voltage				
DL-150U-V56P-MUG	-	-	75V	-
DL-150U-V214P-MUG	-	-	280V	-
Efficiency@380VVac				
DL-150U-V56P-MUG	90%	91%	-	@380Vac input ,with full load
DL-150U-V214P-MUG	91%	92%	-	
Accuracy of output current	-5%	-	+5%	For constant-power range , with full load
Line regulation	-5%	-	+5%	full load
Load regulation	-5%	-	+5%	full load
Starting time	300ms	-	1000ms	Full load@277-480Vac

Note: The output current is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details.

Dimming characteristics

Dimming function		Min	Typ.	Max	Instructions
0-10V Dimming (Optional)	Safe operation voltage range	0V	-	12V	When the external voltage is $\geq 12V$, the dimming will fail
	Dimming output range	0%	-	100%	-
	Rated operation voltage range	0V	-	10V	It can be set to negative dimming mode through program setting
PWM Dimming (Optional)	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.3V	-
	Rated dimming frequency	300Hz	-	2000Hz	-
	PWM duty cycle	0%	-	99%	Output full power at 99% duty cycle
Resistor Dimming (Optional)	Rated external resistance value	0K Ω	-	100K Ω	-
	Dimming output range	0%	-	100%	-
Multiple time-controlled dimming (Optional)	MCU controlling	Segmented dimming function		operating mode	
	Timer control	The default is six segments, Can be customized		24H to achieve a cycle	

Note:

1. Output current of dimming port: 100uA (typical value);
2. The maximum voltage of the dimming port is 12V. If the external power supply voltage exceeds 12V or the signal cable is inverted, the power supply will be damaged;
3. Dimming default setting is three in one positive logic dimming (programmable software can be set to timing dimming, 0-5V or other voltage dimming);
4. When set to positive logic dimming function, the 0V dimming is turned off, and the output voltage is $0.46 \times V_{omax}$ after the dimming is turned off. Be careful when using this function, but customers are advised to use 1-10V dimming.
5. When setting negative logic dimming, the default output is 100% when the dimming is suspended. Negative logic dimming cannot be turned off. When the port voltage of the dimming is greater than 10.5V, the maximum power output of the power supply will be achieved.
6. 0-10V dimming: When the signal voltage is 0V, the maximum output voltage is 28V.

Protection

Protection	description
Input under-voltage protection	When the input voltage is less than 240Vac±10%, the output power gradually decreases.
Output overload protection	Protection mode:hiccup mode,recovers automatically after fault condition is removed.
Output short circuit protection	Hiccup mode:recovers automatically after fault condition is removed
Over temperature protection	Self-recovery type : when the housing temperature is greater than 90°C, the output power decreases gradually.
Output over-voltage protection	Protection mode: Hiccup mode or clamped in output highest voltage , the product is not damaged , LED driver works normally after fault condition is removed.

Note: Unless otherwise specified, all parameters should be measured at the condition of 380Vac (50Hz) input ,with rated load ,and ambient temperature of 25°C.

Environmental

Environmental categories	Parameter
Working temperature	-40 ~ +55°C@200-277Vac (refer to "Life Curve ")
Safety shell temperature	-40 ~ 90°C
Working humidity	20 ~ 95% RH
Storage temperature、humidity	-40~+80°C, 10 ~ 95% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	70000 h @ housing temperature 75°C, 380Vac, 80% load, see section "housing temperature and life"

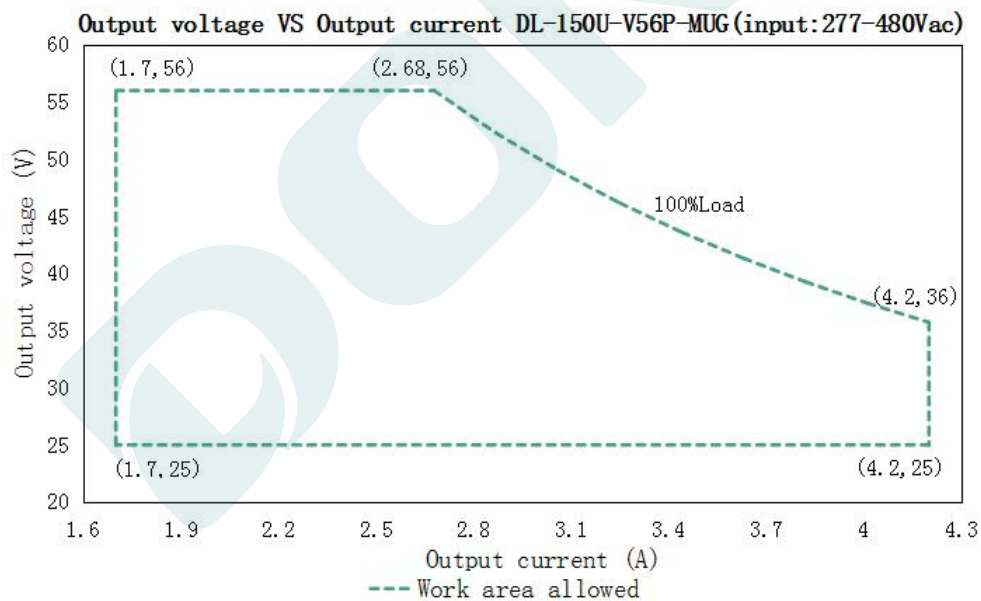
Note: Unless otherwise specified, all parameters should be measured at the condition of 380Vac (50Hz) input ,with rated load ,and ambient temperature of 25°C.

Safety and EMC

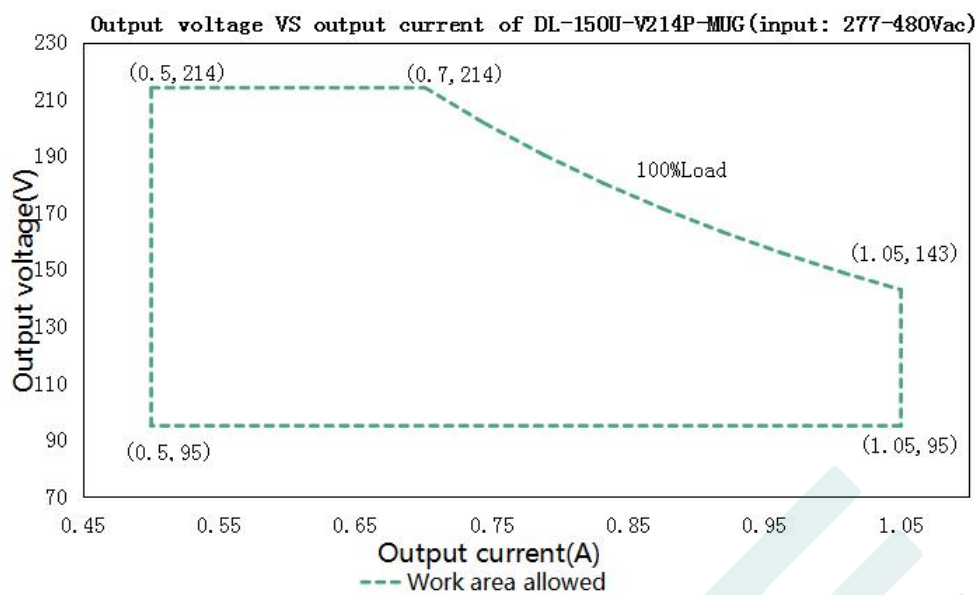
Safety categories	Standard
Safety	UL 8750
EMC	FCC Part15, Subpart B
Surge leve	Differential mode L-N $\pm 6\text{KV}$ (2 ohm) ,common mode L , N-PE $\pm 10\text{KV}$ (12 ohm) ; Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P:2.2KVac I/P-PE :2.2KVac O/P-PE : 2.2KVac I/P-DIM:2.2KVac O/P-DIM:2.2KVac
Insulation impedance	I/P-PE:100M Ω / 500VDC; I/P-O/P:100M Ω / 500VDC / 25°C/ 70% RH
Leakage current	<0.7mA@480Vac

Note: The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation,the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

I-V Working area

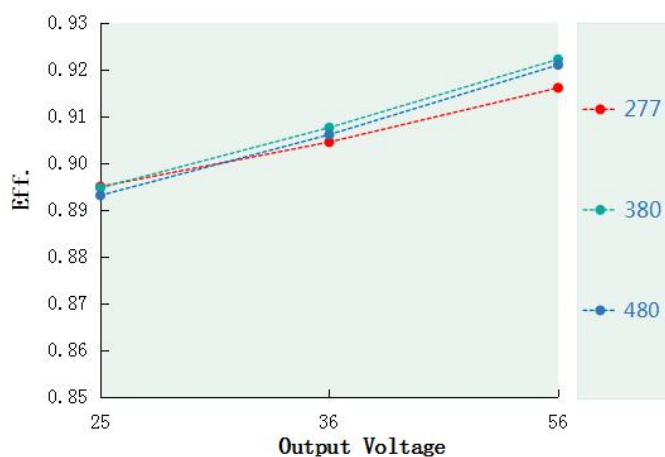


Load	Output								
Load working Voltage	25V	29V	33V	36V	40V	44V	48V	52V	56V
Io_MAX	4.2A	4.2A	4.2A	4.2A	3.75A	3.41A	3.13A	2.88A	2.68A
Po_MAX	105W	121.8W	138.6W	150W	150W	150W	150W	150W	150W

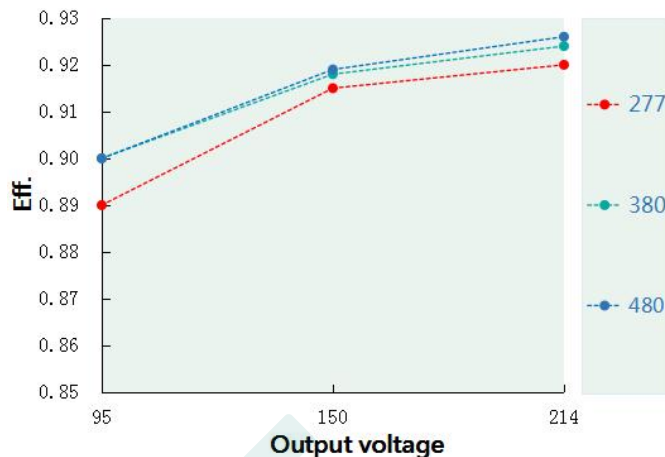


Load	Output								
Load working Voltage	95V	108V	123V	143V	156V	172V	186V	200V	214V
Io_MAX	1.05A	1.05A	1.05A	1.05A	0.961A	0.872A	0.806A	0.75A	0.7A
Po_MAX	99.75W	113.4W	129.1W	150W	150W	150W	150W	150W	150W

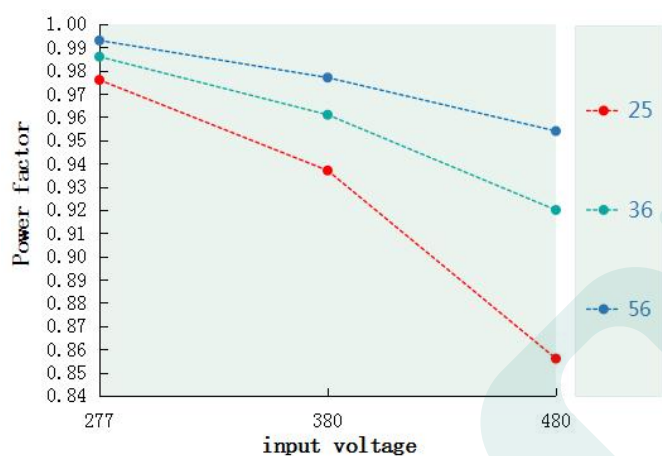
Eff. VS Output voltageDL-150U-V56P-MUG



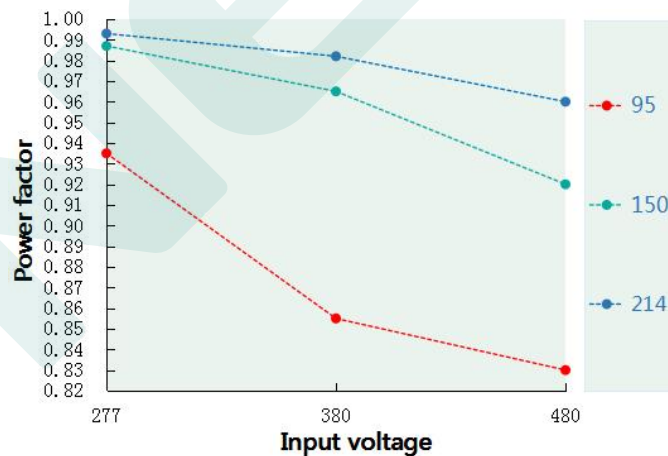
Eff. VS Output voltageDL-150U-V214P-MUG



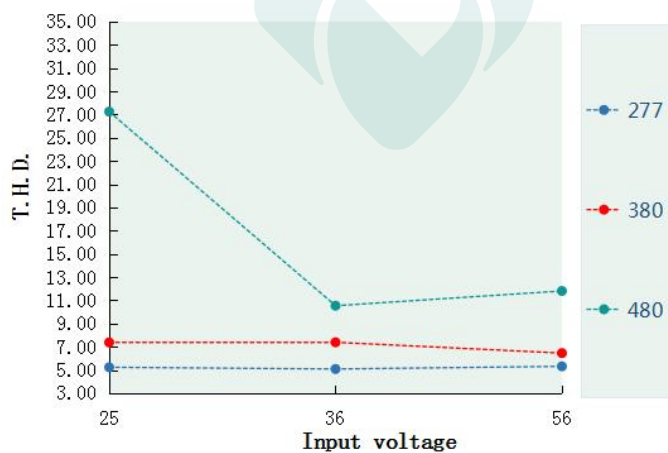
Power factor VS Input voltageDL-150U-V56P-MUG



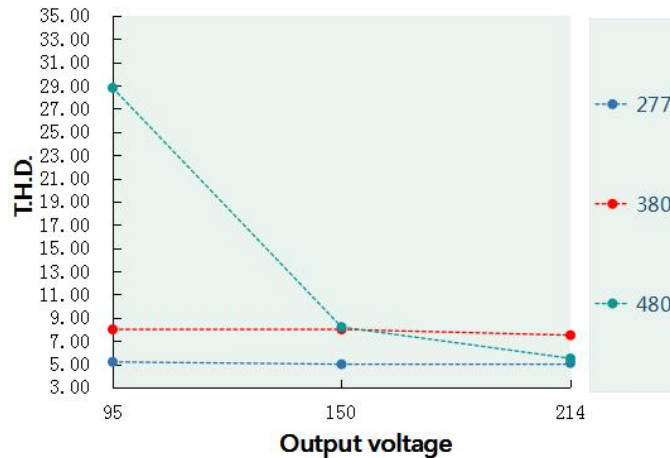
Power factor VS Input voltageDL-150U-V214P-MUG



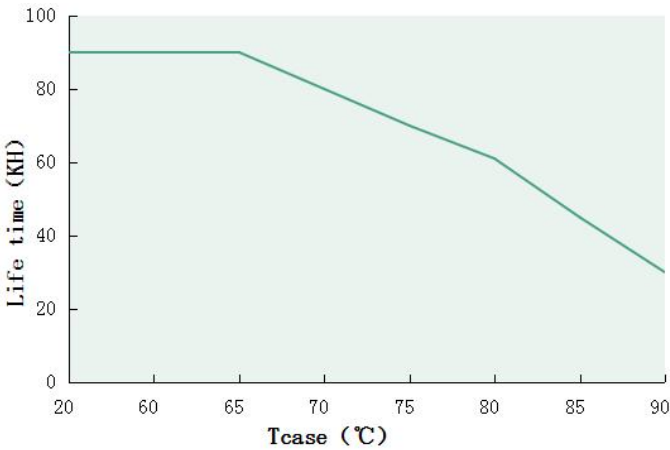
T.H.D. VS Output voltage(DL-150U-V56P-MUG)



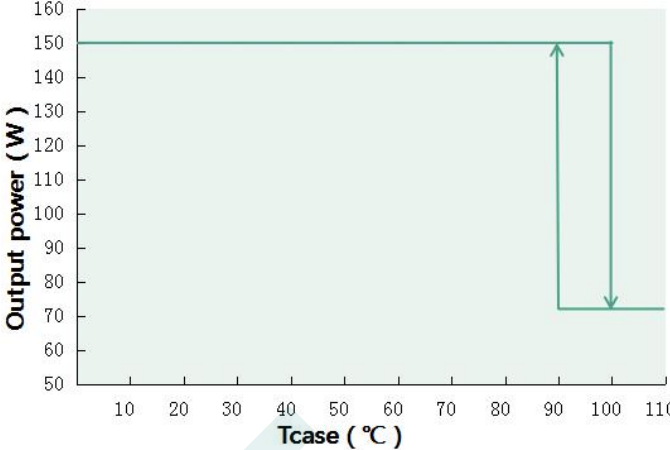
T.H.D. VS Output voltage(DL-150U-V214P-MUG)



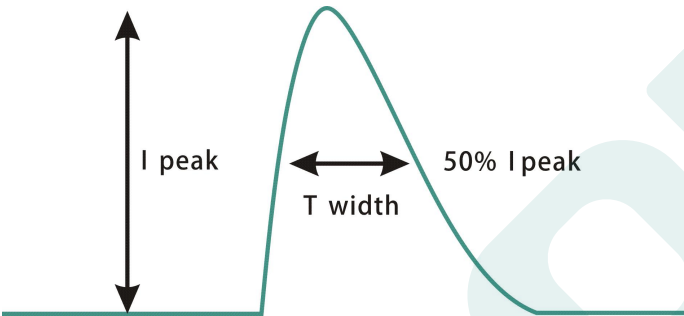
Tcase VS Lifetime(DL-150U-MUG)



Output power VS Tcase (DL-150U-MUG)

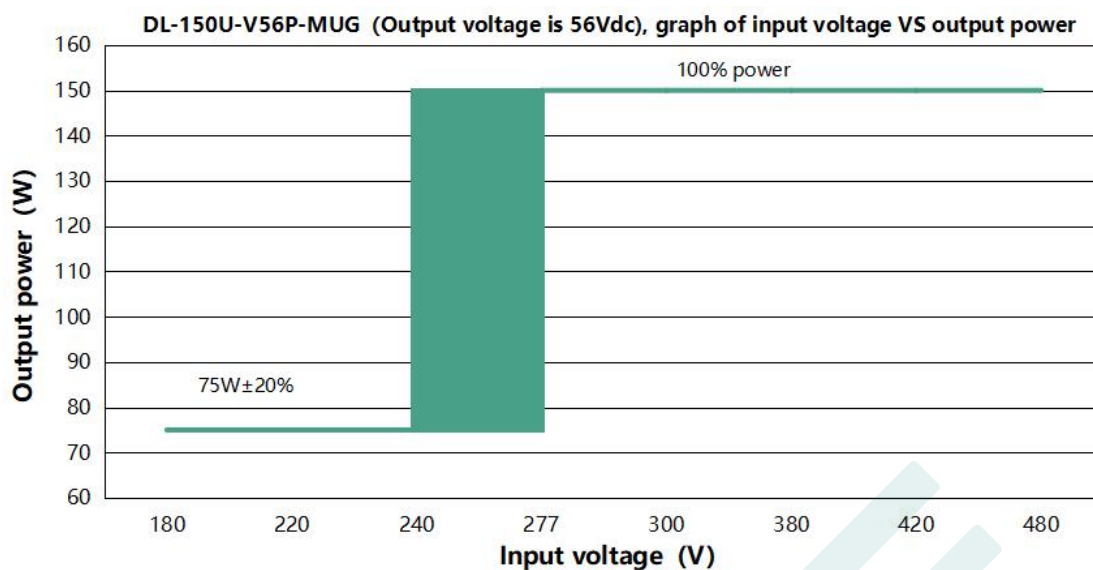


Inrush Current (DL-150U-MUG)



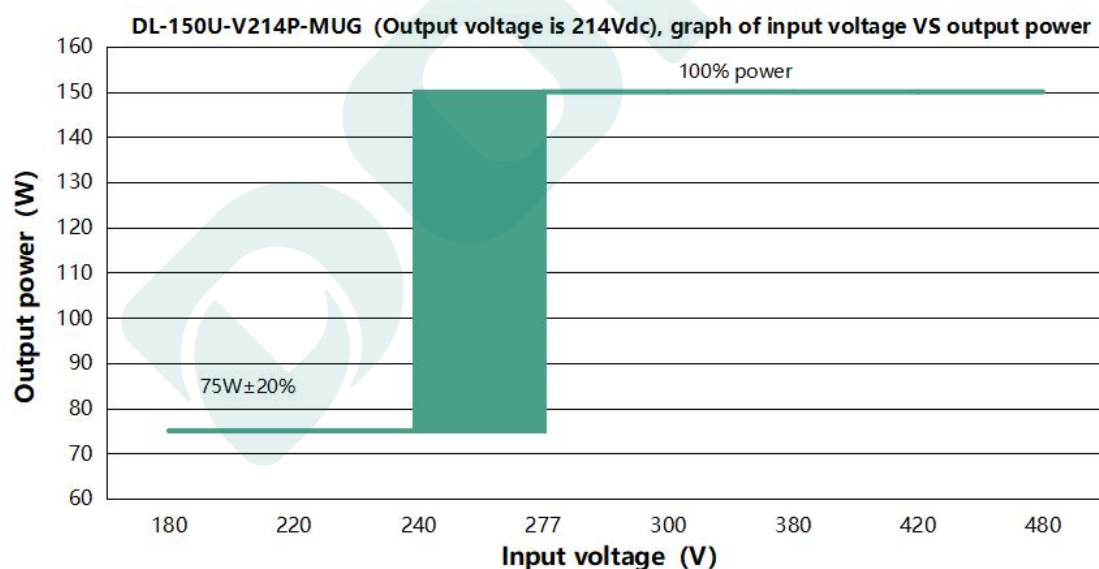
Input voltage	Peak current	T(@50% Peak current)
277Vac	78A	4us
380Vac	88A	5.1us
480Vac	89A	4.3us

Output power VS Input voltage



DL-150U-V56P-MUG (When the output voltage is 56Vdc, the rated output current value and output power corresponding to different input voltage)

Input Voltage	180Vac	220Vac	240Vac	277Vac	300Vac	380Vac	420Vac	480Vac
Iout	1.34A	1.34A	1.34A	2.68A	2.68A	2.68A	2.68A	2.68A
Pout	75W	75W	75W	150W	150W	150W	150W	150W



DL-150U-V214P-MUG (When the output voltage is 214Vdc, the rated output current value and output power corresponding to different input voltage)

Input Voltage	180Vac	220Vac	240Vac	277Vac	330Vac	380Vac	420Vac	480Vac
Iout	0.35A	0.35A	0.35A	0.7A	0.7A	0.7A	0.7A	0.7A
Pout	75W	75W	75W	150W	150W	150W	150W	150W

Note: When the input voltage is lower than $240 \pm 10\%$ Vac, the output power drops to $75W \pm 20\%$.

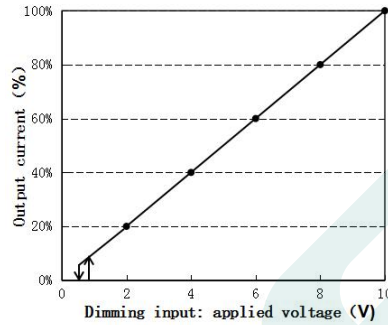
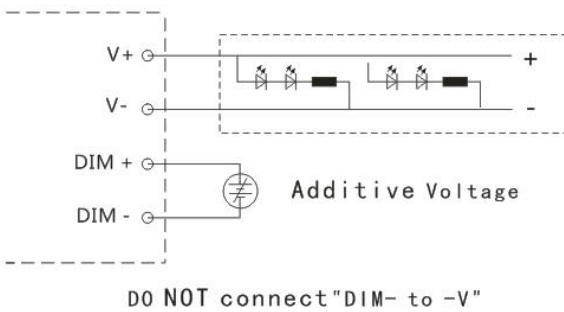
Dimming function

※ Three-in-one dimming function (P version only)

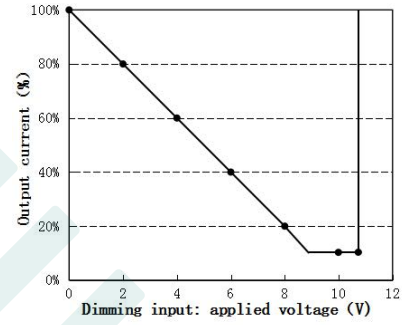
A. To adjust the output current, applying one of the three methods between DIM+ and DIM- : a resistor of 0-100K, or any voltage of 0-10V , or a PWM signal with amplitude of 10V. .

B. output current of dimming port: 100uA (typical value).

• With 0-10V dimming voltage(for both logic,negative and positive):

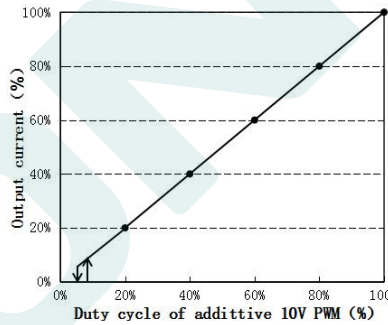
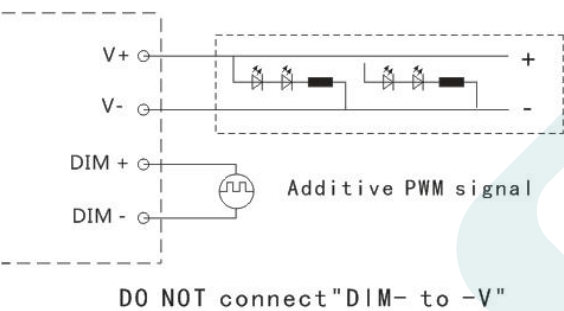


Positive logic dimming curve

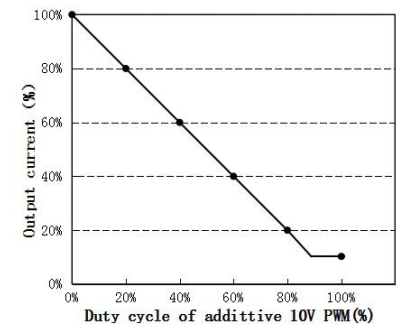


Negative logic dimming curve

• With 10V PWM signal (Frequency range : 300Hz-2K Hz) :

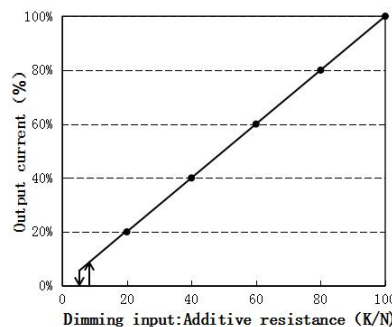
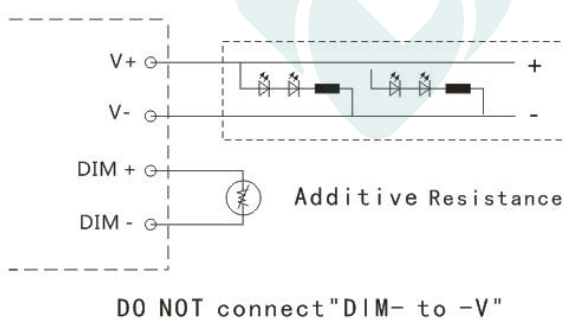


Positive logic dimming curve

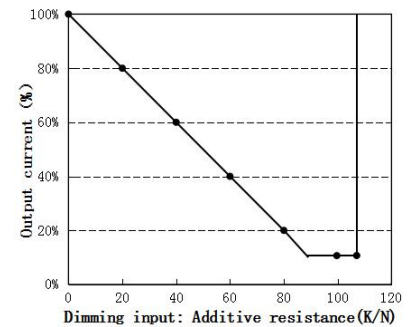


Negative logic dimming curve

• With an additional 0-100K resistor:



Positive logic dimming curve



Negative logic dimming curve

Note:

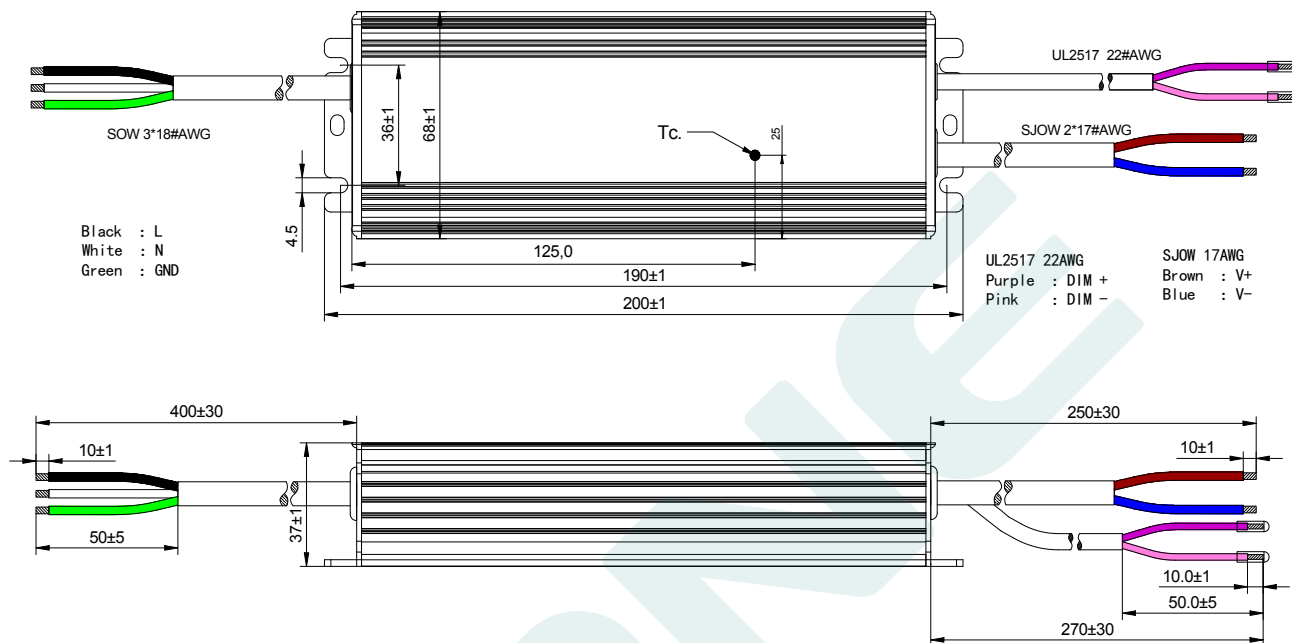
1. Positive and negative logic dimming can be programmed.
2. Dimming off only applies to positive logic. For other requirements, please contact technical personnel.

Mechanical specification

Size (mm) L200*W68*H37

DL-150U-V56-MUG

DL-150U-214P-MUG

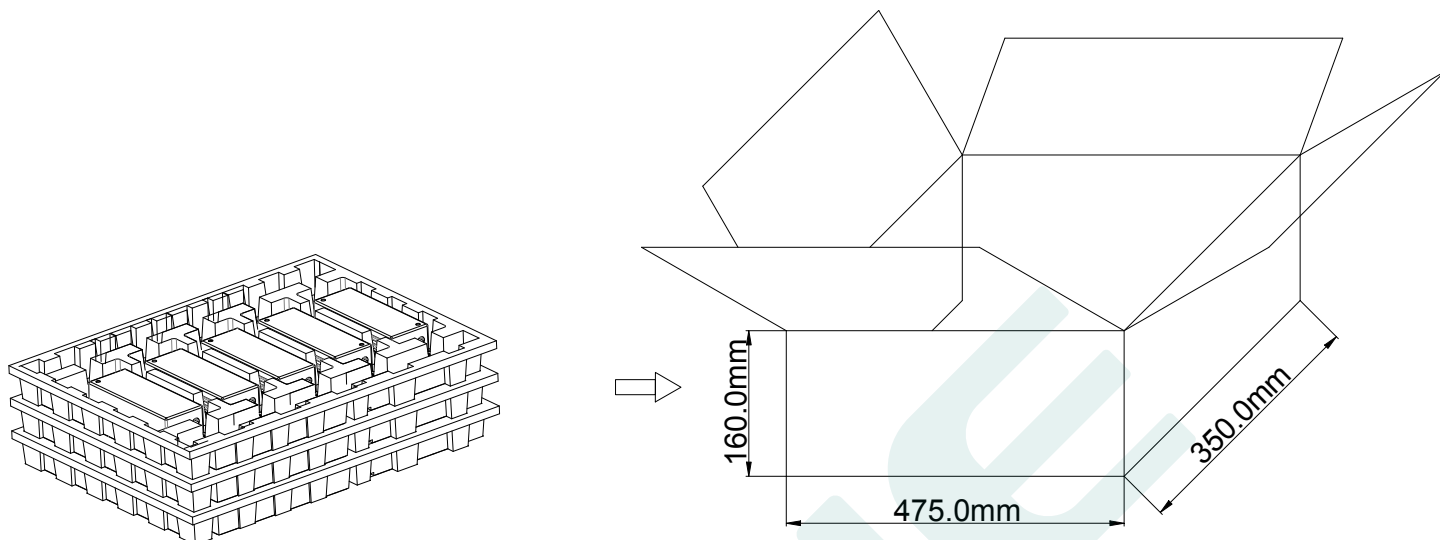


Weight

Weight 940 g

Packaging

Packaging (mm) L475*W350*H160



Note: One Carton 3 layers and 5pcs each layer, total 15pcs/carton.

Note:

1. According to the qualified certificate of the LED DRIVER, that with English label is for sale in Europe, America and India.
2. That with Chinese label are used for Chinese market.

Version

DATE	DESCRIPTION	REV.	CHECK
2021.12.02	Initial version.	V1.0	
2024.1.18	Added DL-150U-V214P-MUG	V1.1	
2024.12.24	1. Modify output current range and input current; 2. Added : 0-10V dimming: When the signal voltage is 0V, the maximum output voltage is 28V.	V1.2	
2025.4.18	Update Package	V1.3	
2025.8.6	Update the content of the output characteristic table and the High-pot test	V1.4	
2025.10.13	Change DL-150U-V214P-MUG no-load voltage to 280V	V1.5	

MANUFACTRUER		
EDIT	CHECK	APPROVE